

FIG. 1A

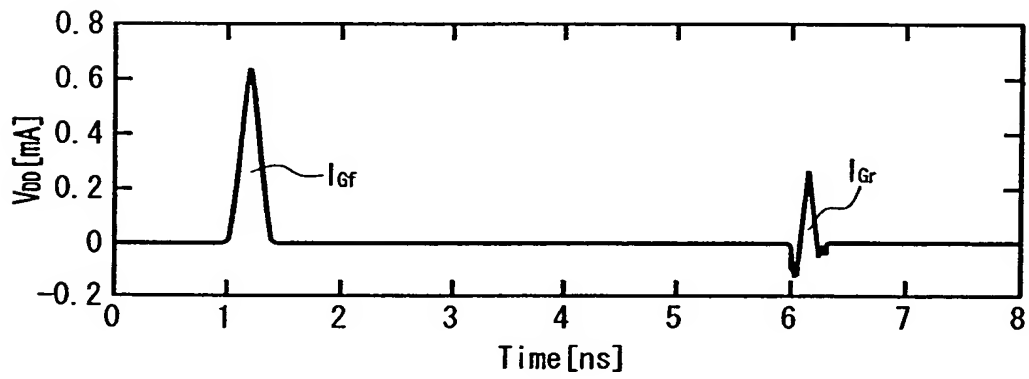


FIG. 1B

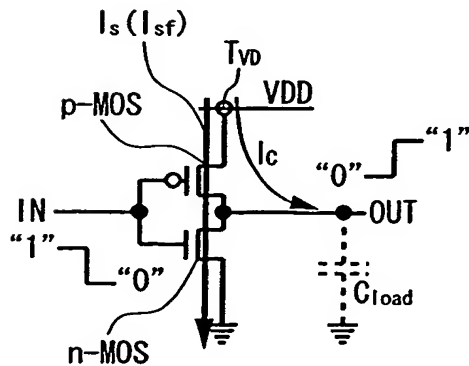


FIG. 1C

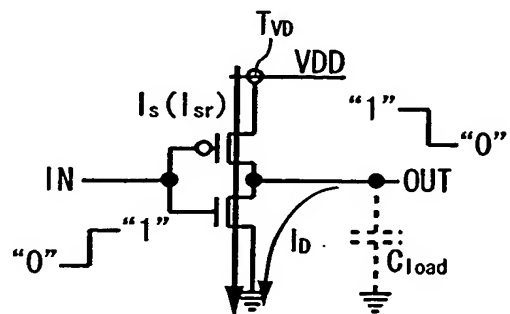


FIG. 1D

FIG. 2A

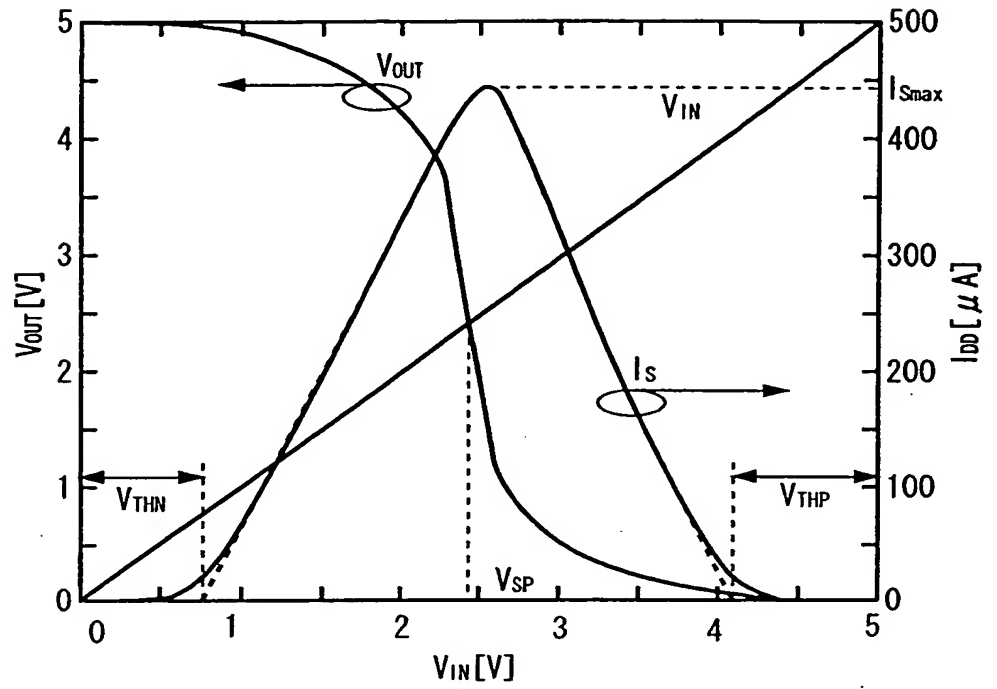


FIG. 2B

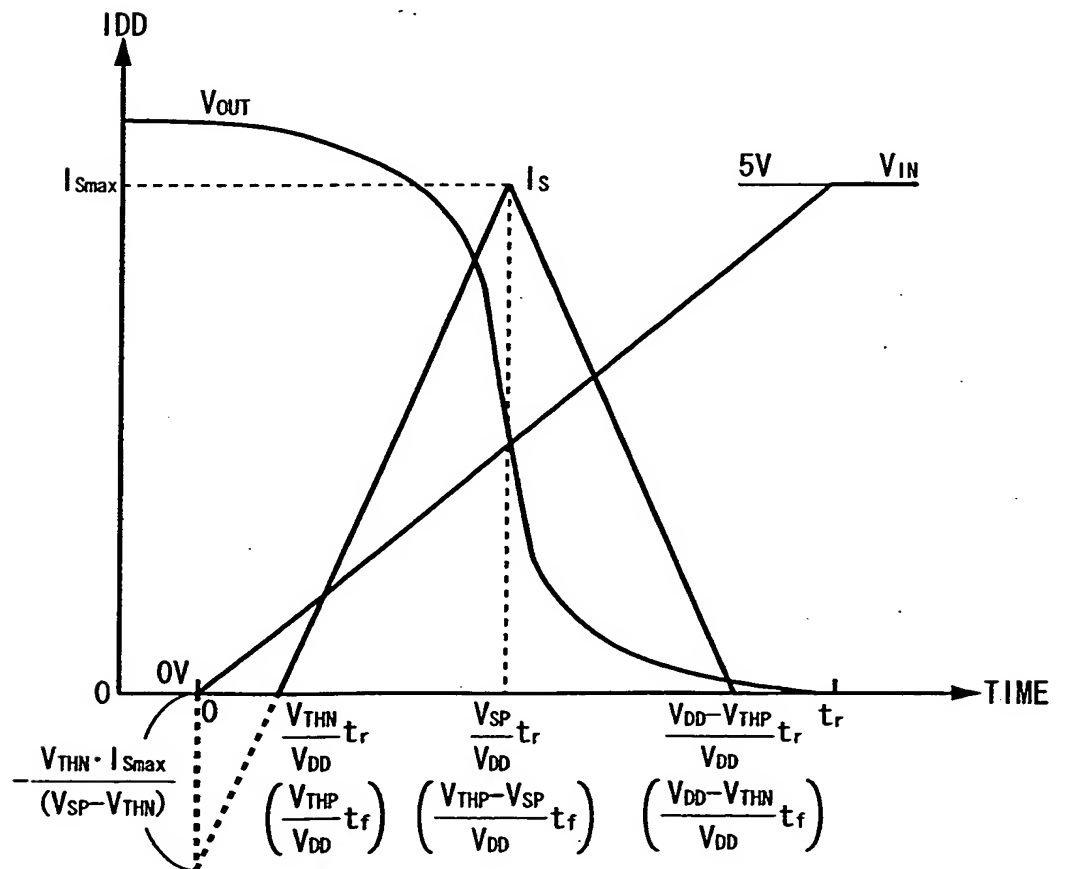


FIG. 3A

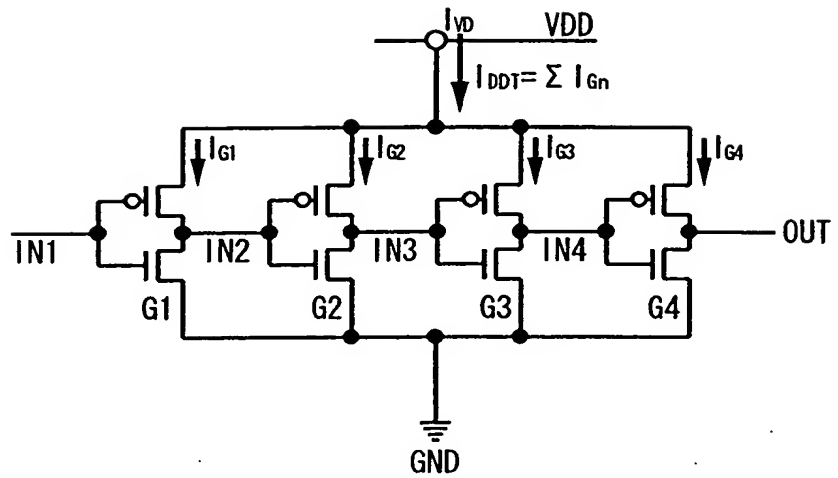


FIG. 3B

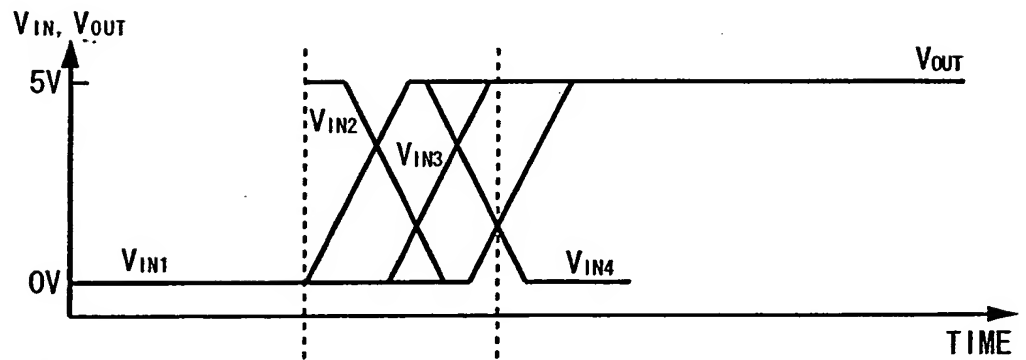
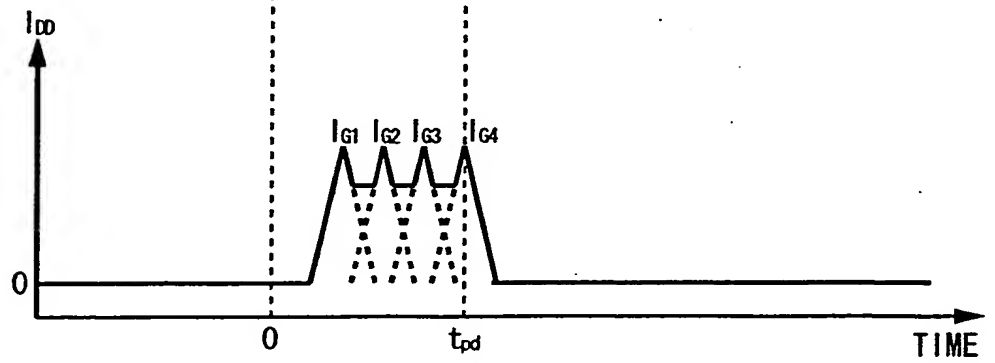


FIG. 3C



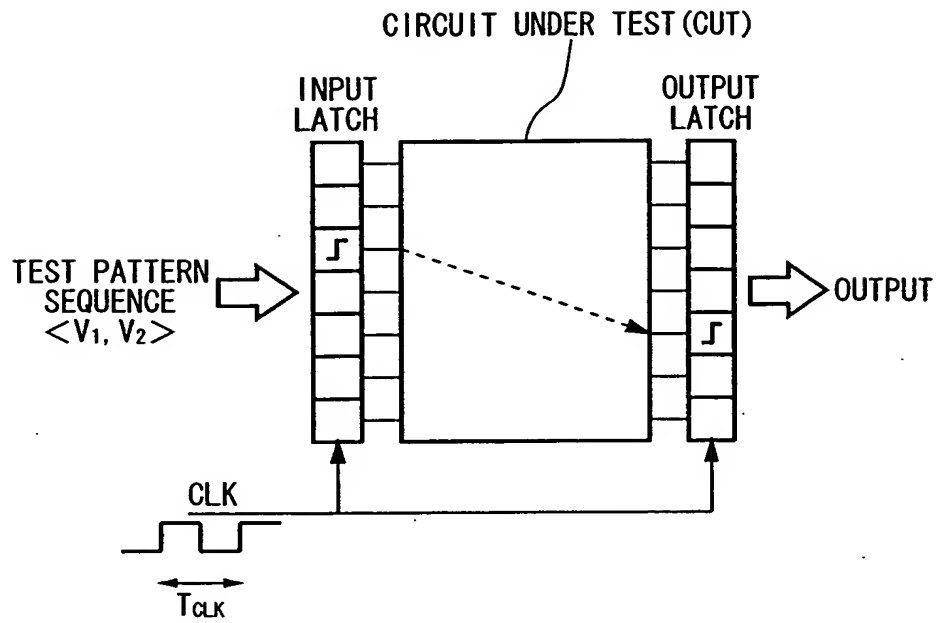


FIG. 4A

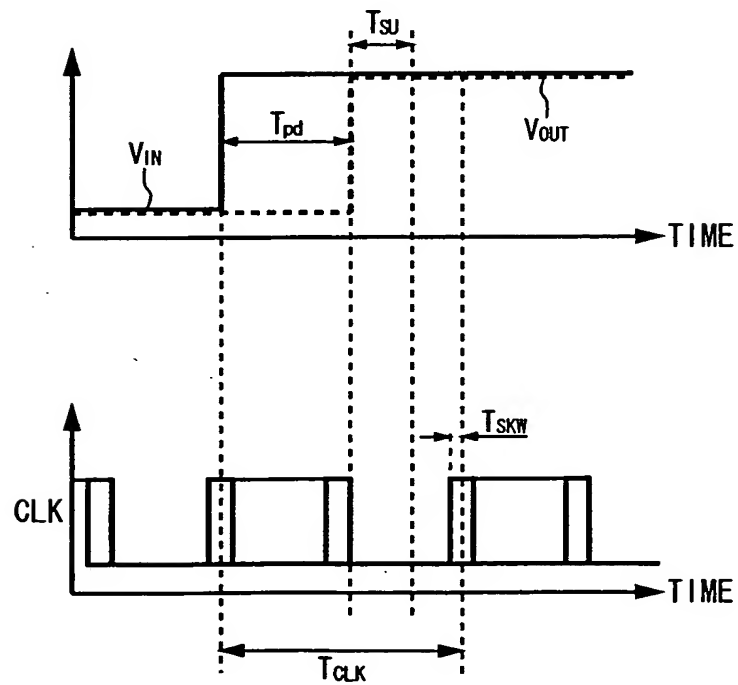


FIG. 4B

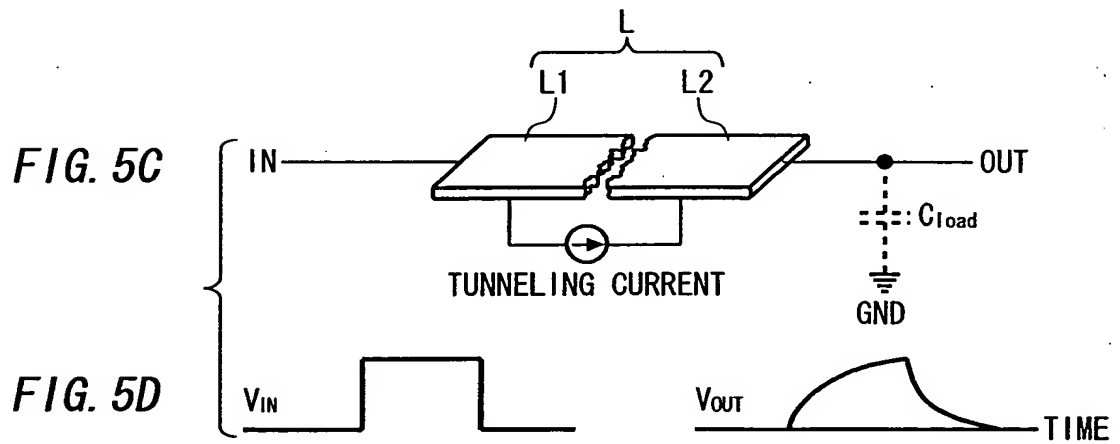
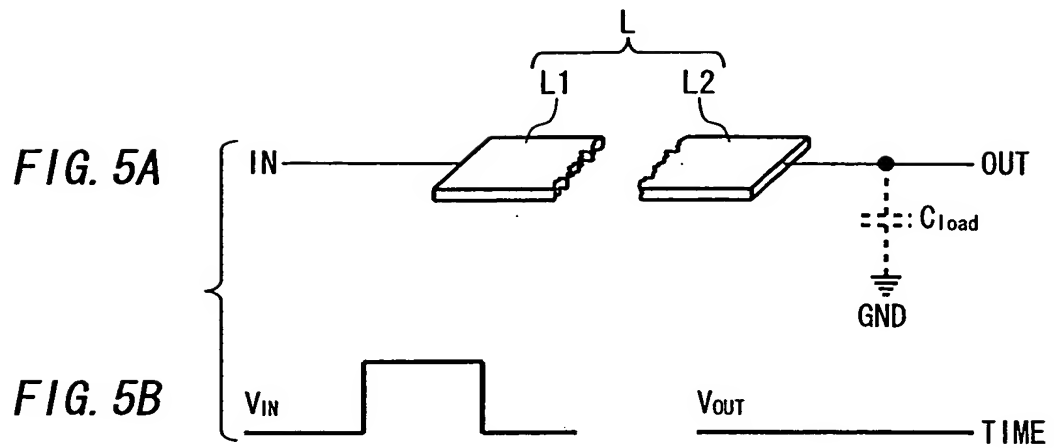


FIG. 6A

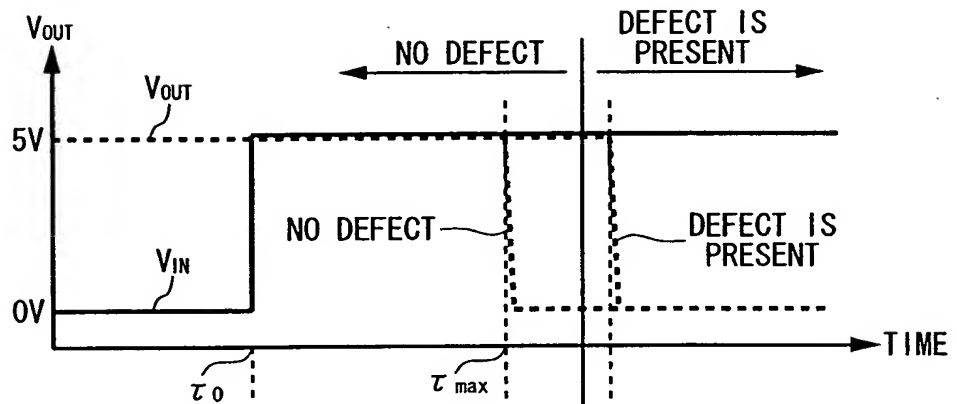


FIG. 6B

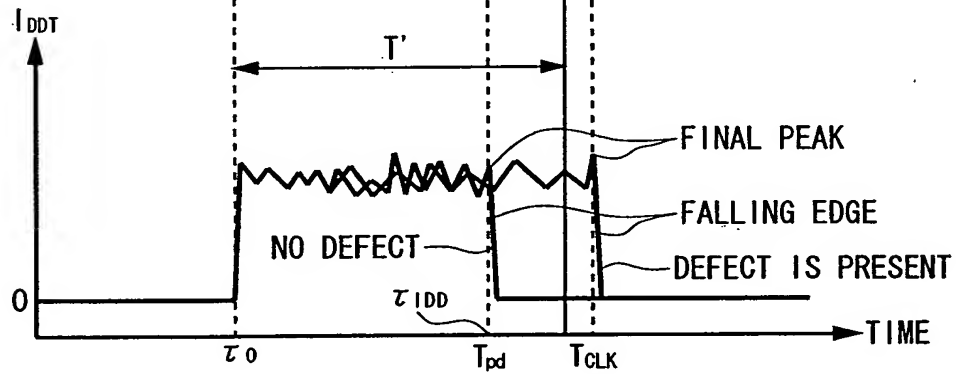


FIG. 7A

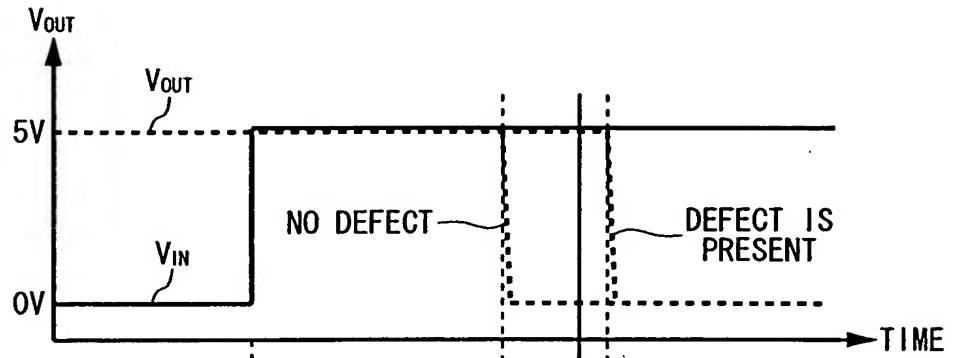
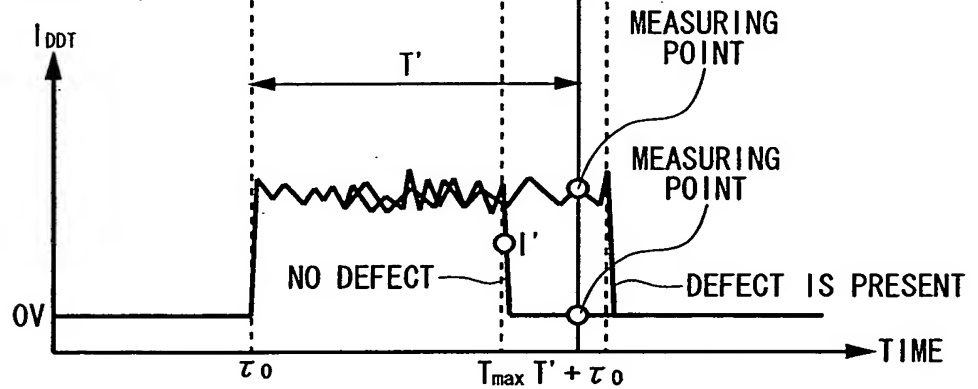


FIG. 7B



$$\begin{aligned} \text{NO DEFECT: } i_{DDT}(T' + t_0) &\leq I' \\ \text{DEFECT IS PRESENT: } i_{DDT}(T' + t_0) &> I' \end{aligned}$$

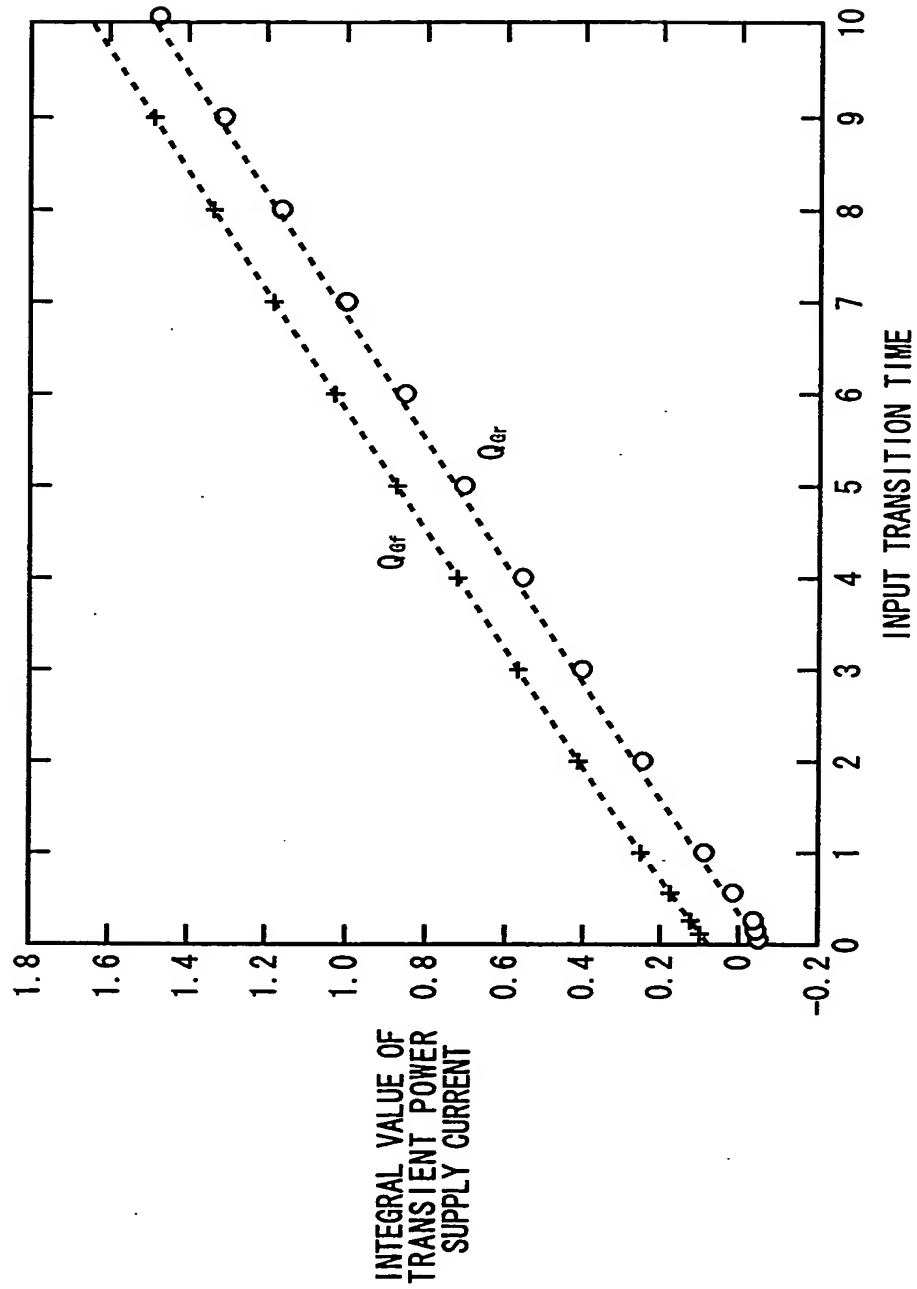


FIG. 8



FIG. 9A

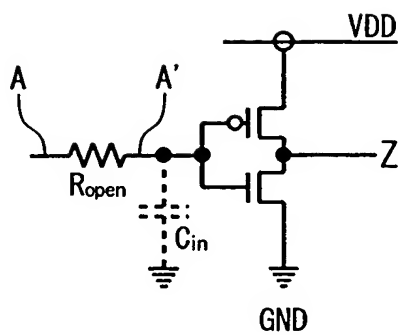


FIG. 9B

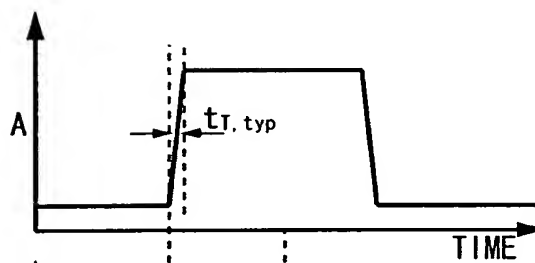
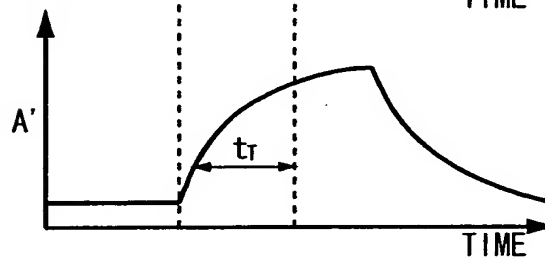


FIG. 9C



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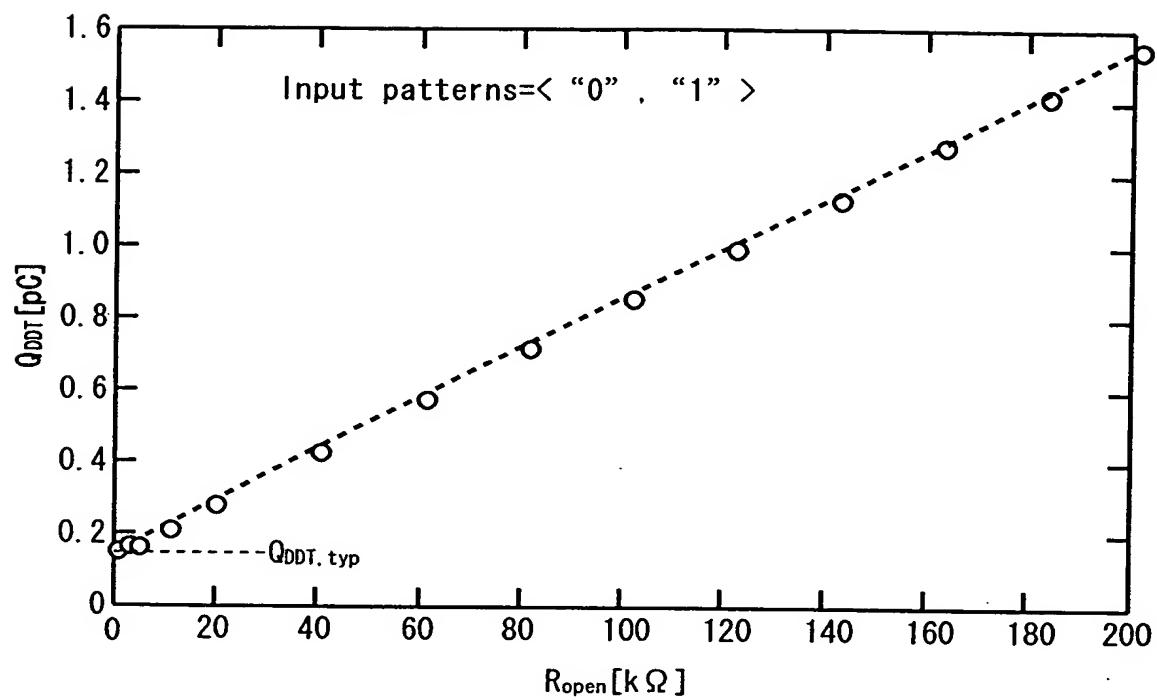


FIG. 10

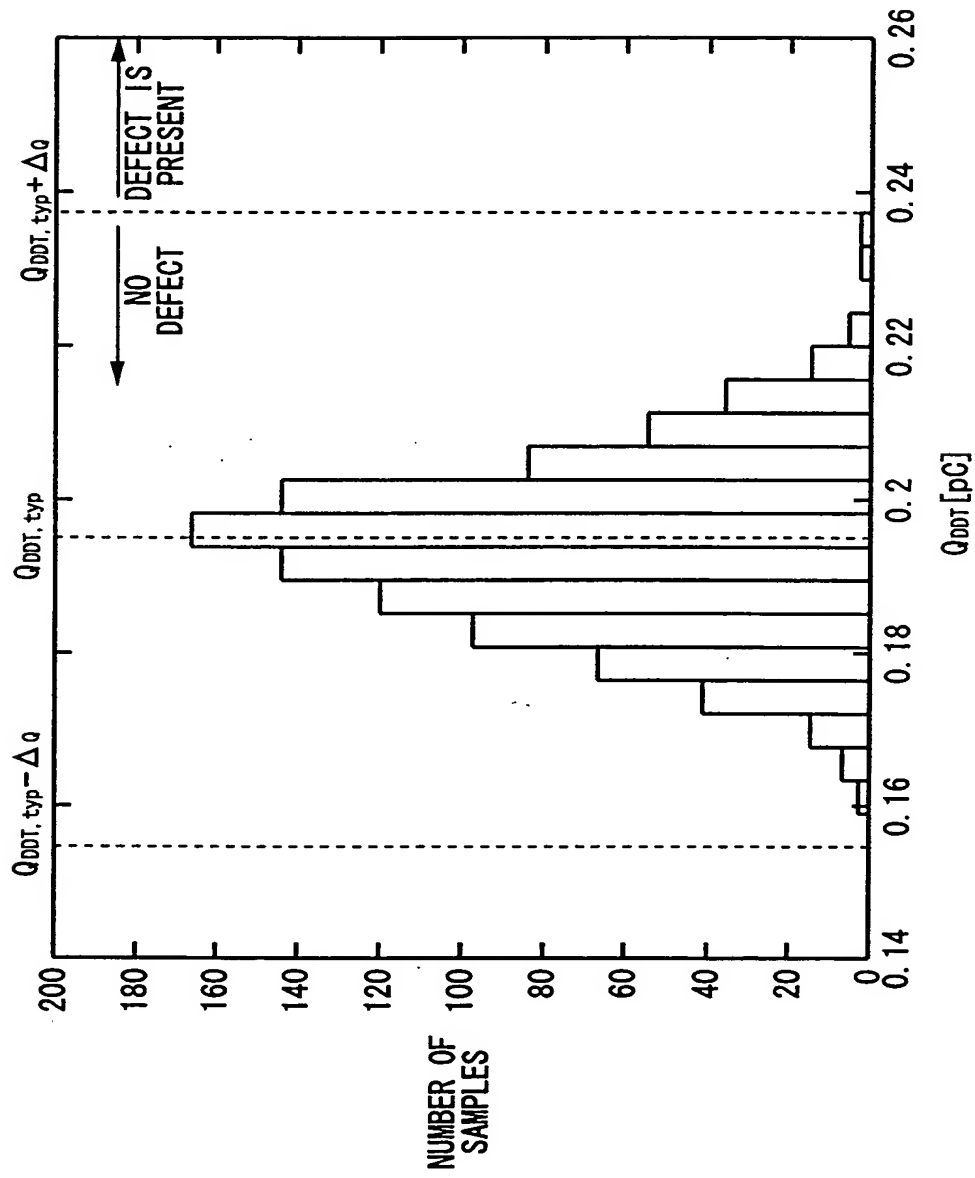


FIG. 11

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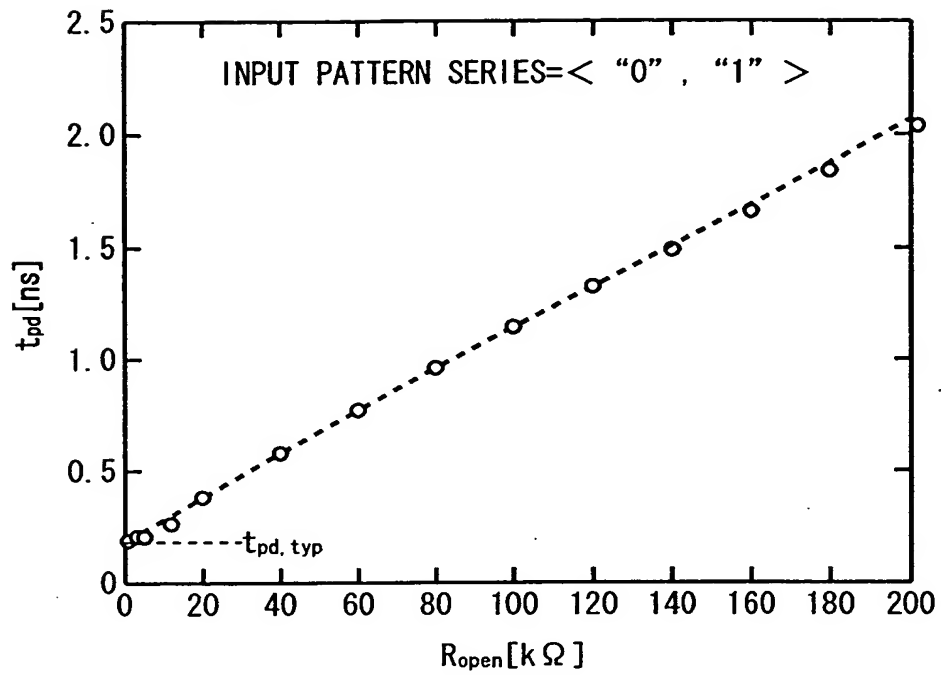


FIG. 12

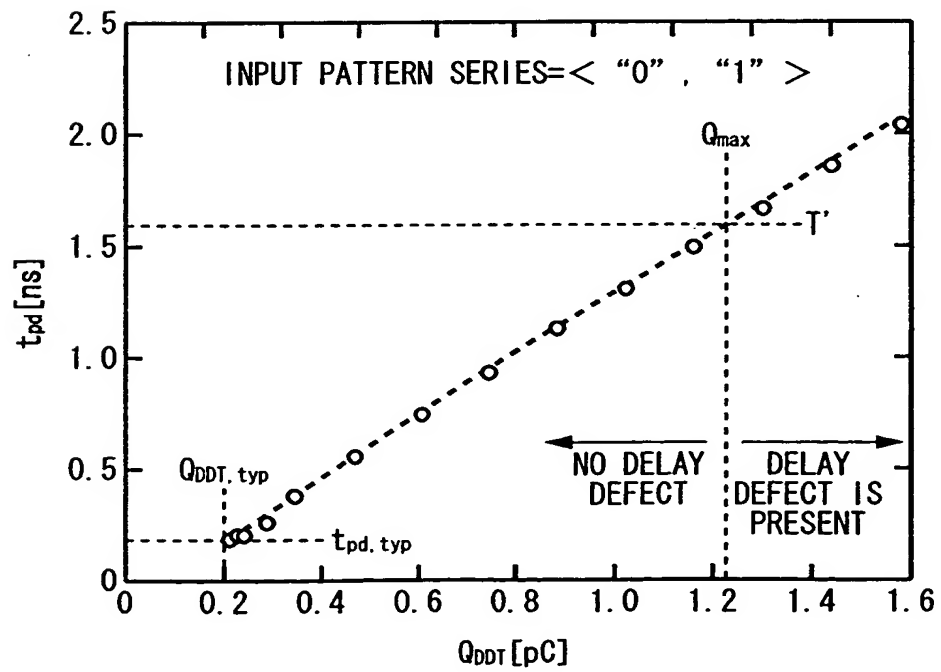
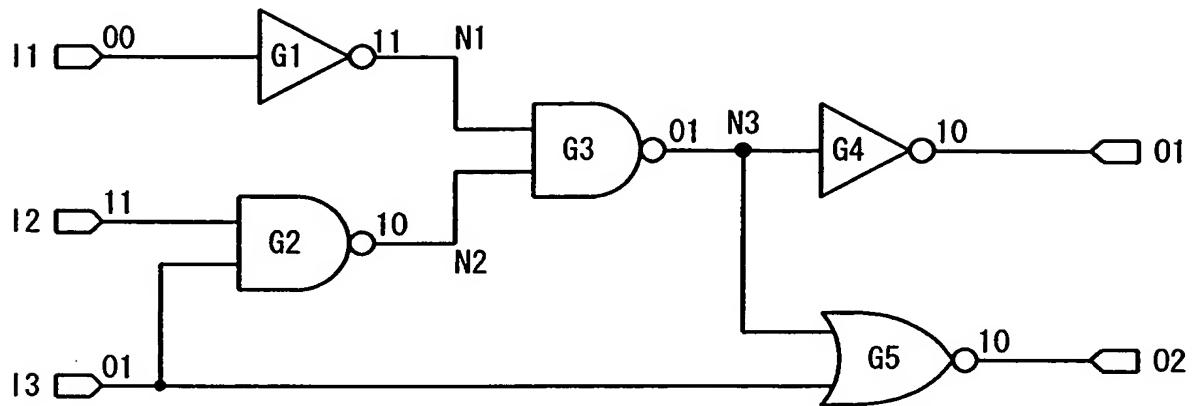


FIG. 13

*FIG. 14*

TEST PATTERN SEQUENCE ID NO.	INPUT TERMINAL			INTERNAL NODE			OUTPUT TERMINAL		DETECTABLE FAULTY GATE
	I1	I2	I3	N1	N2	N3	O1	O2	
T1	0	0	R	1	1	0	1	F	G5
T2	0	1	R	1	F	R	F	F	G2, G3, G4, G5
T3	1	0	R	0	1	1	0	0	——
T4	1	1	R	0	F	1	0	0	G2
T5	0	R	0	1	1	0	1	1	——
T6	0	R	1	1	F	R	F	0	G2, G3, G4
T7	1	R	0	0	1	1	0	0	——
T8	1	R	1	0	F	1	0	0	G2
T9	R	0	0	F	1	R	F	F	G1, G3, G4, G5
T10	R	0	1	F	1	R	F	0	G1, G3, G4
T11	R	1	0	F	1	R	F	F	G1, G3, G4, G5
T12	R	1	1	F	0	1	0	0	G1
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮

FIG. 15

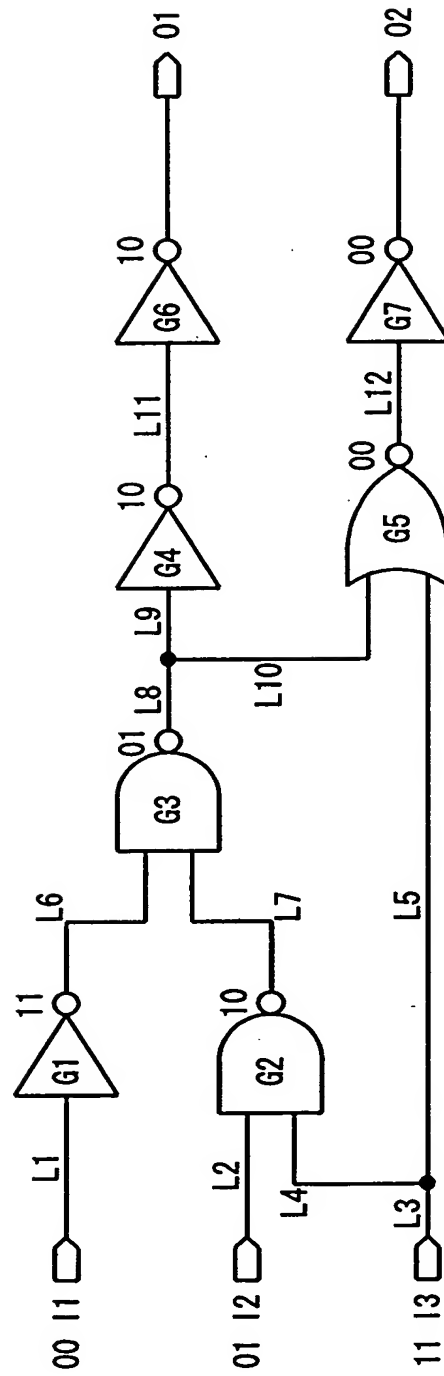


FIG. 16

TEST PATTERN SEQUENCE ID NO.	INPUT TERMINAL			INTERNAL SIGNAL LINE												OUTPUT TERMINAL		DETECTABLE DEFECTIVE INTERNAL SIGNAL LINE
	I1	I2	I3	1	2	3	4	5	6	7	8	9	10	11	12	O1	O2	
T1	0	0	R	0	0	R	R	R	1	1	1	1	1	1	F	1	F	L3, L5, L12
T2	0	1	R	0	1	R	R	R	1	F	F	F	F	F	F	F	F	L3, L4, L5, L7, L8, L9, L10, L11, L12
T3	1	0	R	1	0	R	R	R	0	1	0	0	0	0	0	0	0	—
T4	1	1	R	1	1	R	R	R	0	F	0	0	0	0	0	0	0	L3, L4
T5	0	R	0	0	R	0	0	0	1	1	1	1	1	1	1	1	1	—
T6	0	R	1	0	R	1	1	1	1	F	F	F	F	F	0	F	0	L2, L7, L8, L9, L11
T7	1	R	0	1	R	0	0	0	0	1	0	0	0	0	0	0	0	—
T8	1	R	1	1	R	1	1	1	0	F	0	0	0	0	0	0	0	L2
T9	R	0	0	R	0	0	0	0	F	1	F	F	F	F	F	F	F	L1, L6, L8, L9, L10, L11, L12
T10	R	0	1	R	0	1	1	1	F	1	F	F	F	F	0	F	0	L1, L6, L8, L9, L11
T11	R	1	0	R	1	0	0	0	F	1	F	F	F	F	F	F	F	L1, L6, L8, L9, L10, L11, L12
T12	R	1	1	R	1	1	1	1	F	0	0	0	0	0	0	0	0	L1
:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:

FIG. 17



TEST PATTERN SEQUENCE ID NO.	INPUT SIGNAL			INTERNAL NODE			OUTPUT TERMINAL		DETECTABLE FAULTY PATH
	I1	I2	I3	N1	N2	N3	O1	O2	
T1	0	0	R	1	1	0	1	F	<I3, O2>
T2	0	1	R	1	F	R	F	F	<I3, N2, N3, O1> <I3, N2, N3, O2>
T3	1	0	R	0	1	1	0	0	—
T4	0	1	R	0	F	1	0	0	—
T5	0	R	0	1	1	0	1	1	—
T6	0	R	1	1	F	R	F	0	<I2, N2, N3, O1>
T7	1	R	0	0	1	1	0	0	—
T8	1	R	1	0	F	1	0	0	—
T9	R	0	0	F	1	R	F	F	<I1, N1, N3, O1> <I1, N1, N3, O2>
T10	R	0	1	F	1	R	F	0	<I1, N1, N3, O1>
T11	R	1	0	F	1	R	F	F	<I1, N1, N3, O1> <I1, N1, N3, O2>
T12	R	1	1	F	0	1	0	0	—
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮

FIG. 18

TEST PATTERN SEQUENCE ID NO.	INPUT TERMINAL			INTERNAL SIGNAL LINE												OUTPUT TERMINAL		DETECTABLE FAULTY PATH
	I1	I2	I3	1	2	3	4	5	6	7	8	9	10	11	12	1	2	
T1	0	0	R	0	0	R	R	R	1	1	1	1	1	1	F	1	F	<I3, L3, L5, L12, O2>
T2	0	1	R	0	1	R	R	R	1	F	F	F	F	F	F	F	F	<I3, L3, L5, L12, O2> <I3, L3, L4, L7, L8, L9, L11, O1> <I3, L3, L4, L7, L8, L10, L12, O1>
T3	1	0	R	1	0	R	R	R	0	1	0	0	0	0	0	0	0	—
T4	1	1	R	1	1	R	R	R	0	F	0	0	0	0	0	0	0	—
T5	0	R	0	0	R	0	0	0	1	1	1	1	1	1	1	1	1	—
T6	0	R	1	0	R	1	1	1	1	F	F	F	F	F	F	F	0	<I2, L2, L7, L8, L9, L11, O1>
T7	1	R	0	1	R	0	0	0	0	1	0	0	0	0	0	0	0	—
T8	1	R	1	1	R	1	1	1	0	F	0	0	0	0	0	0	0	—
T9	R	0	0	R	0	0	0	0	F	1	F	F	F	F	F	F	F	<I1, L1, L6, L8, L9, L11, O1> <I1, L1, L6, L8, L10, L12, O2>
T10	R	0	1	R	0	1	1	1	F	1	F	F	F	F	0	F	0	<I1, L1, L6, L8, L9, L11, O1>
T11	R	1	0	R	1	0	0	0	F	1	F	F	F	F	F	F	F	<I1, L1, L6, L8, L9, L11, O1> <I1, L1, L6, L8, L10, L12, O2>
T12	R	1	1	R	1	1	1	1	F	0	0	0	0	0	0	0	0	—
:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:

FIG. 19

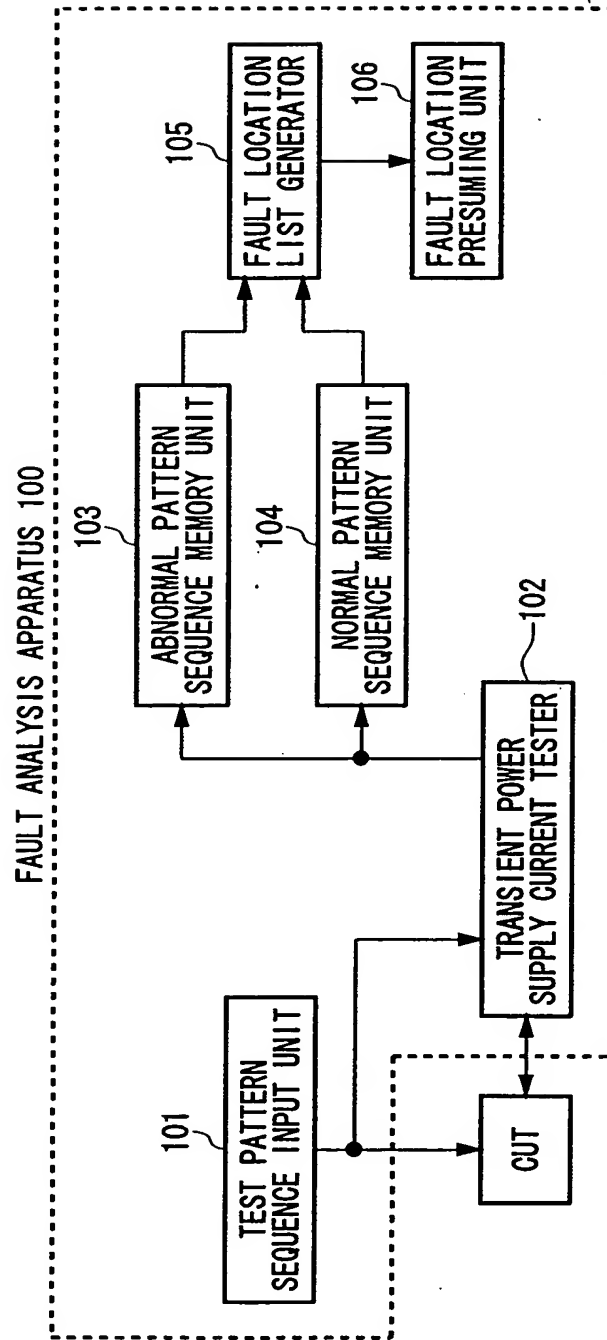


FIG. 20

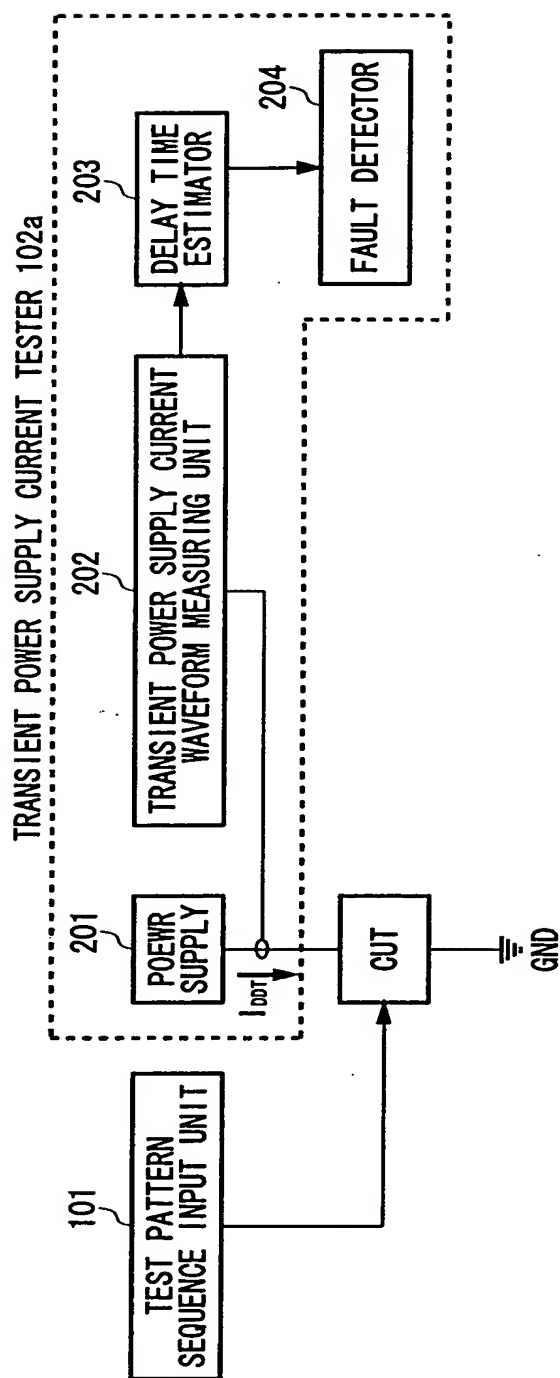


FIG. 21

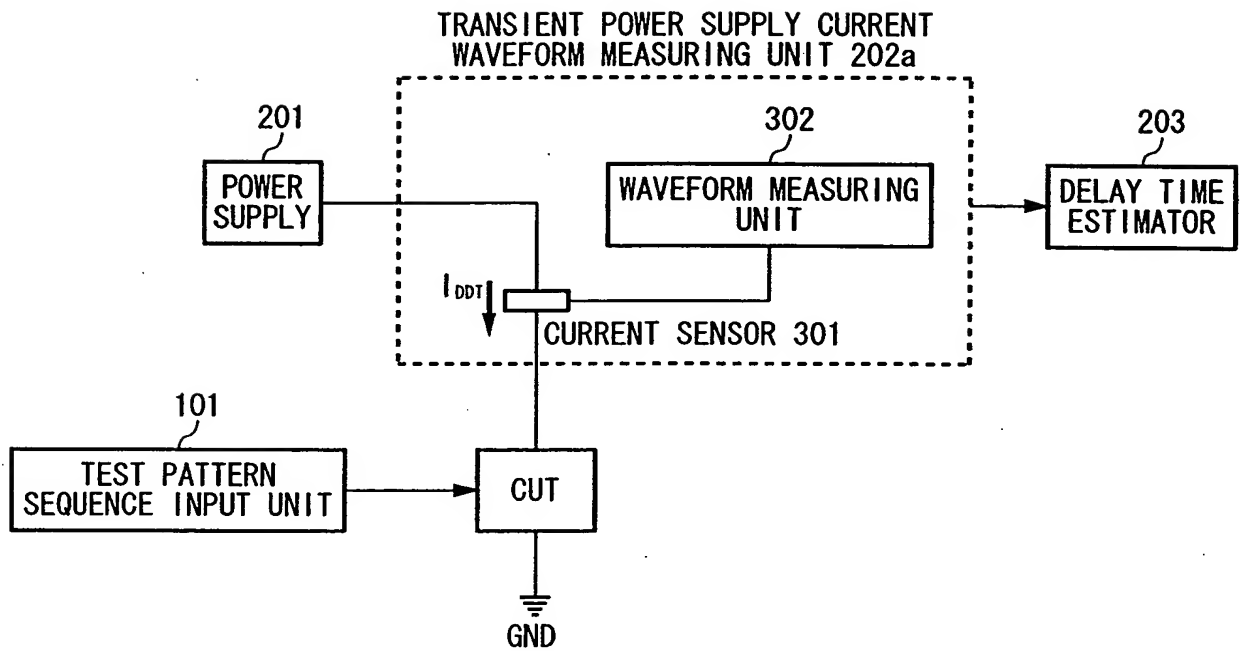


FIG. 22

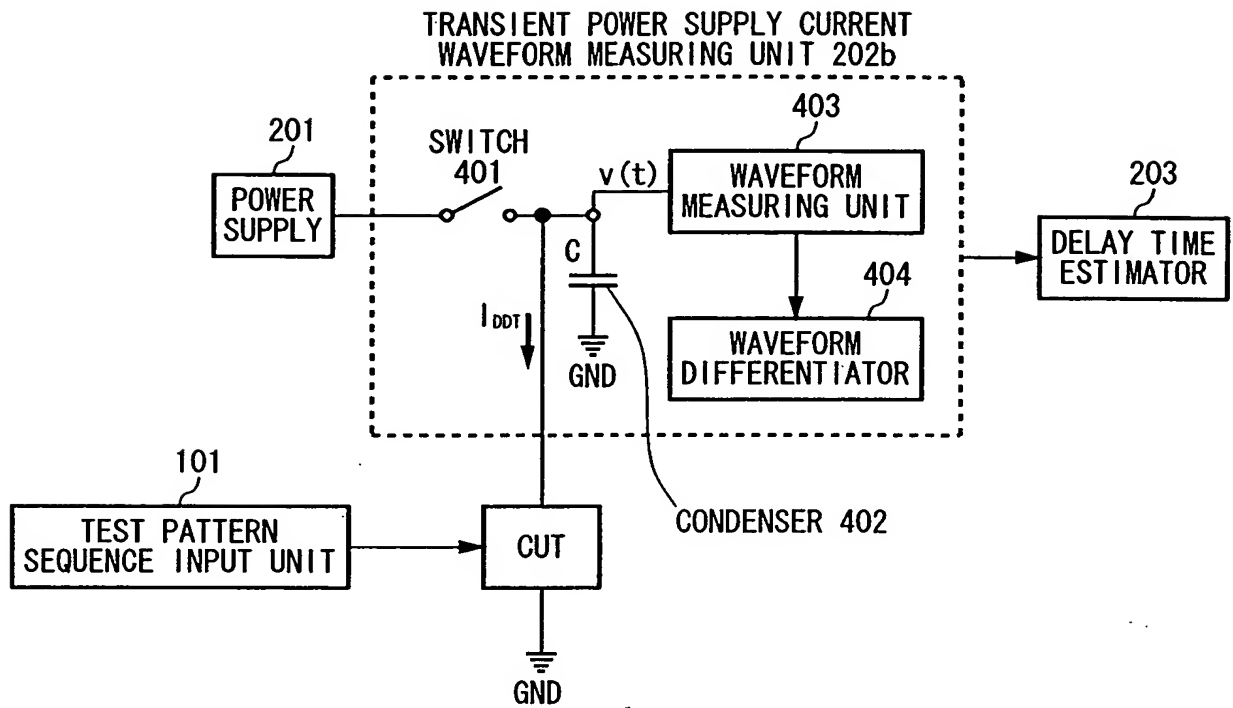


FIG. 23

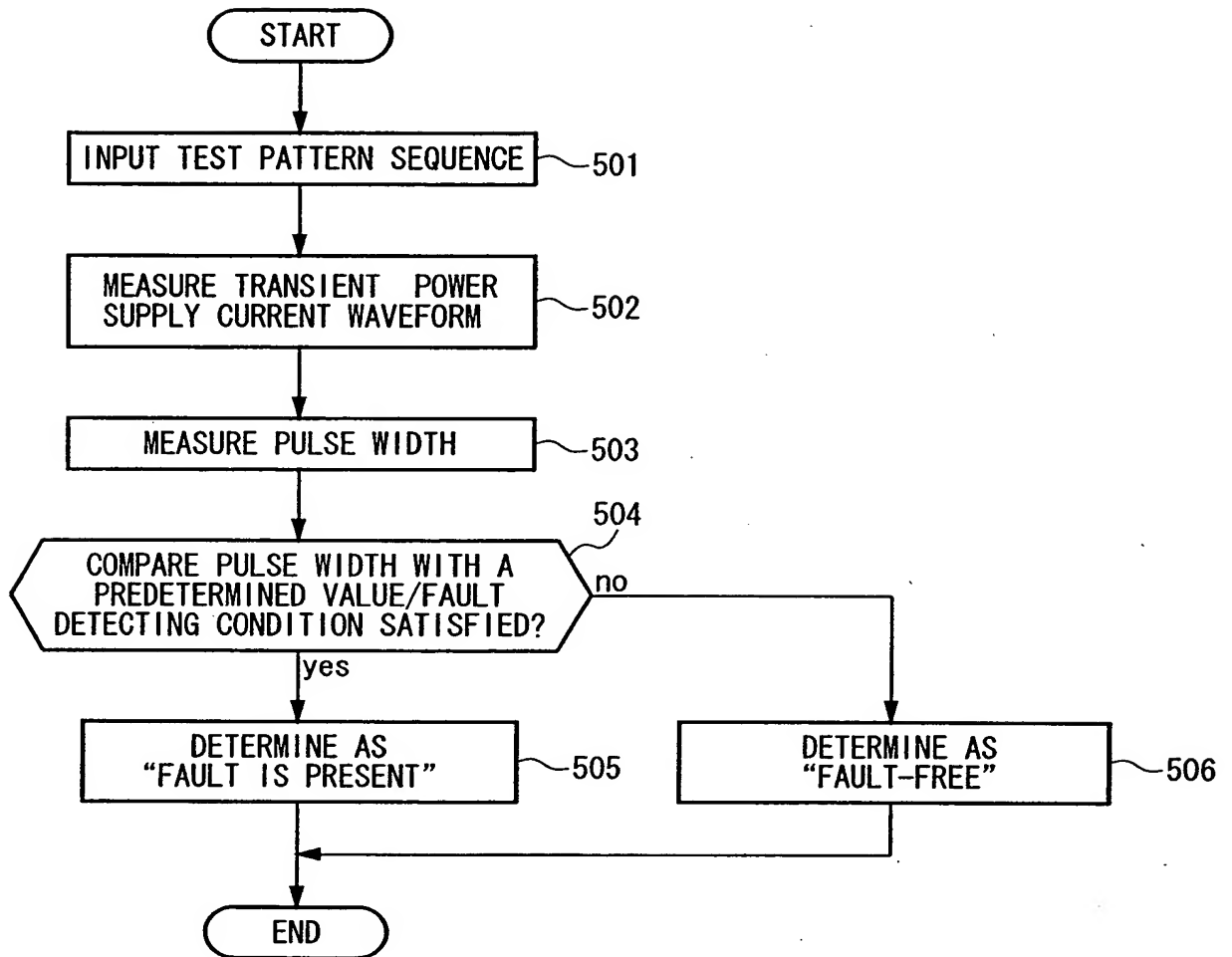


FIG. 24

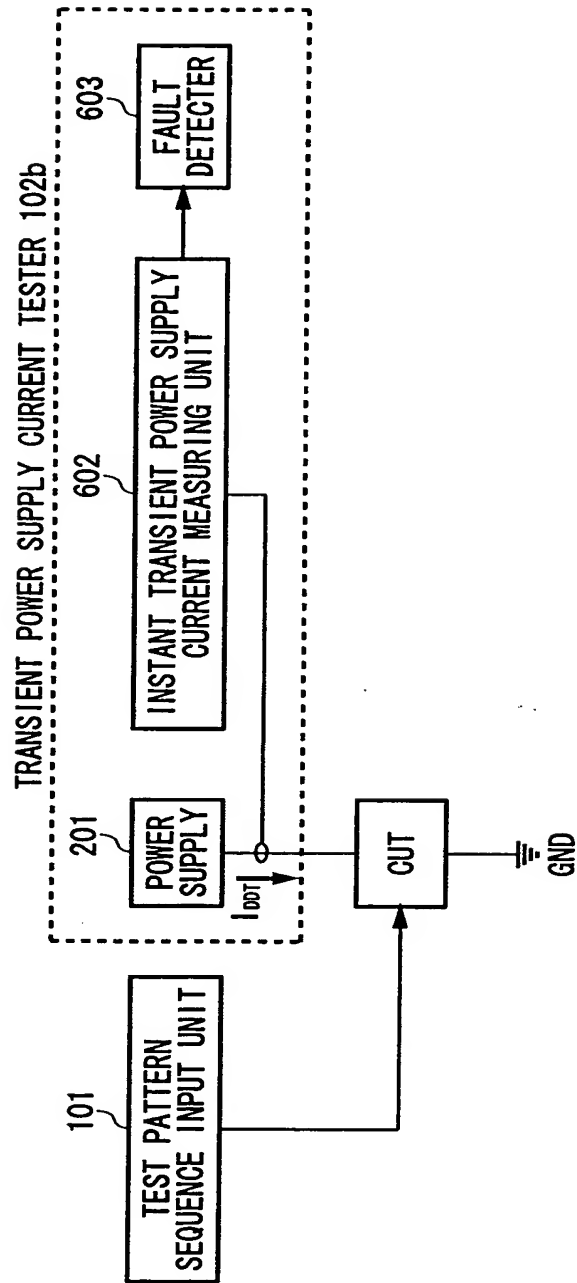


FIG. 25



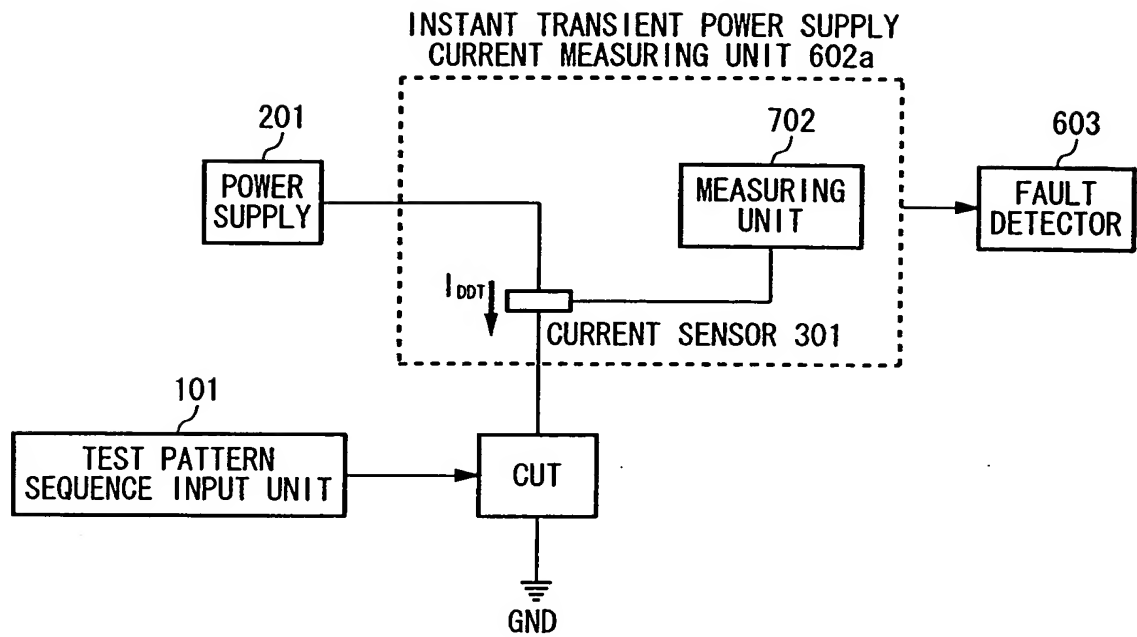


FIG. 26

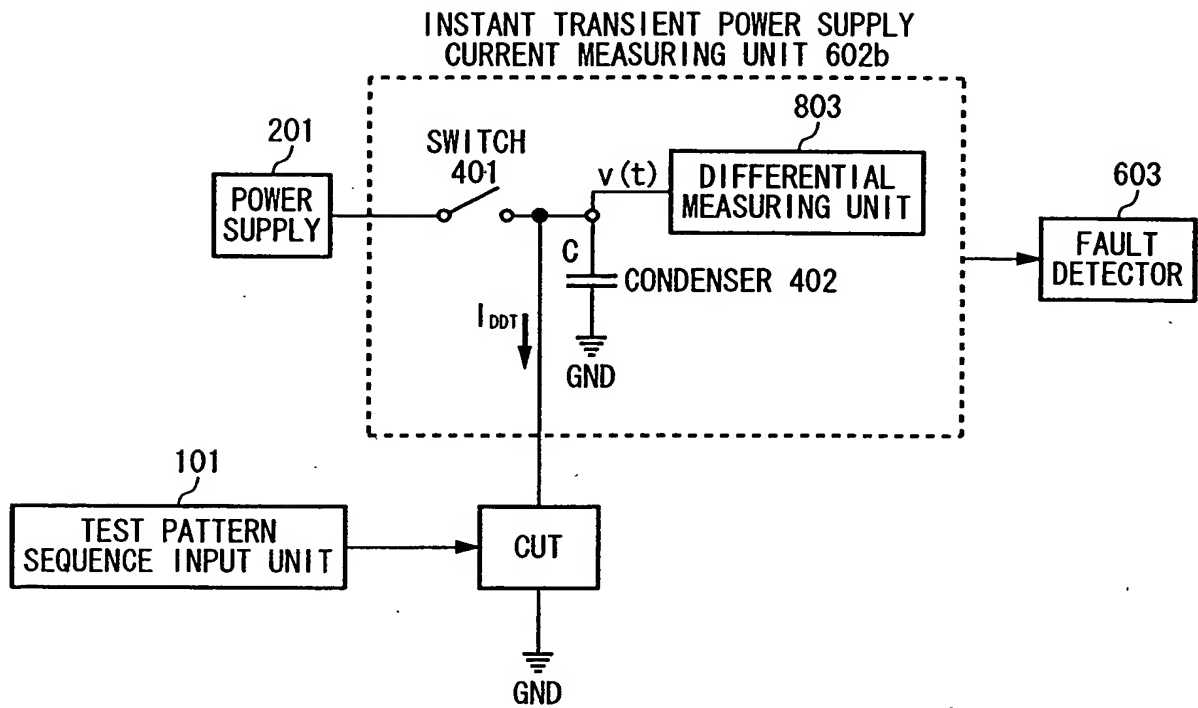


FIG. 27

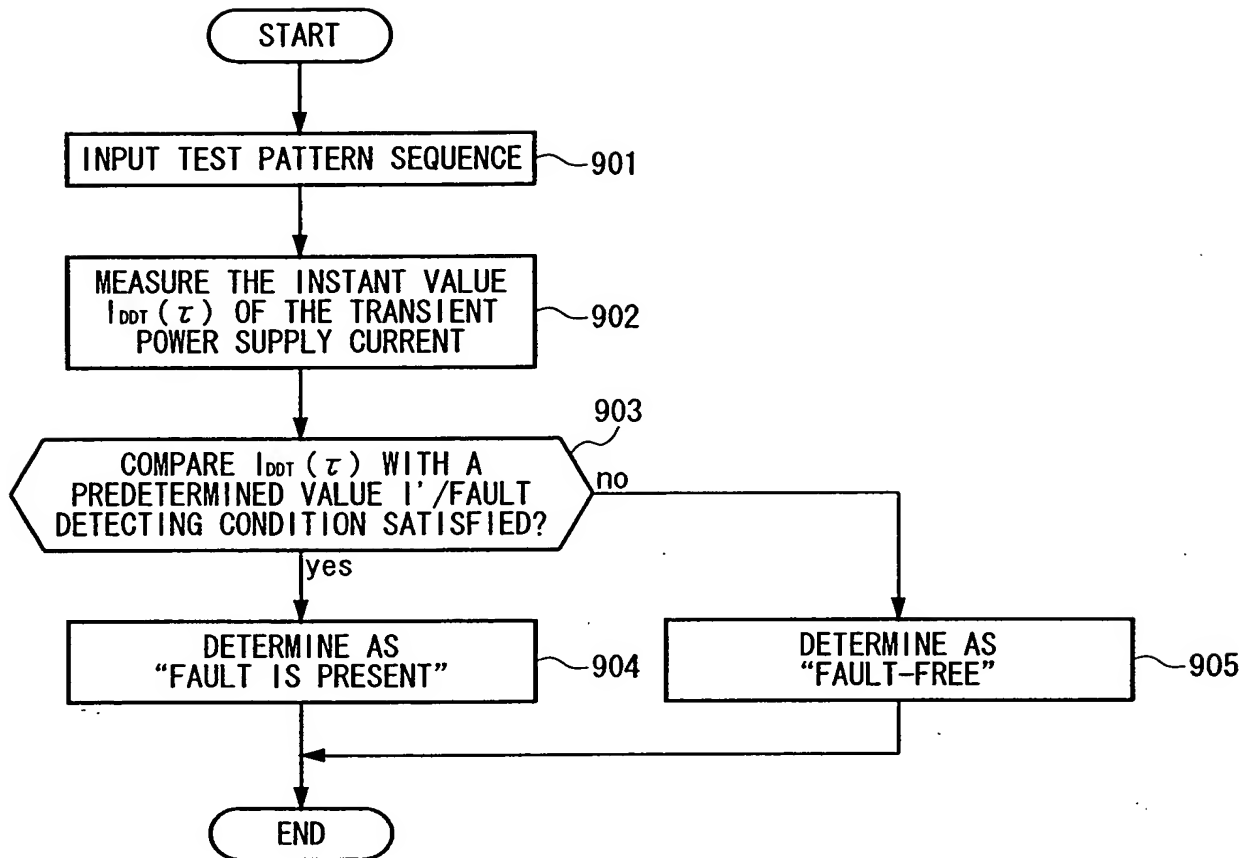


FIG. 28

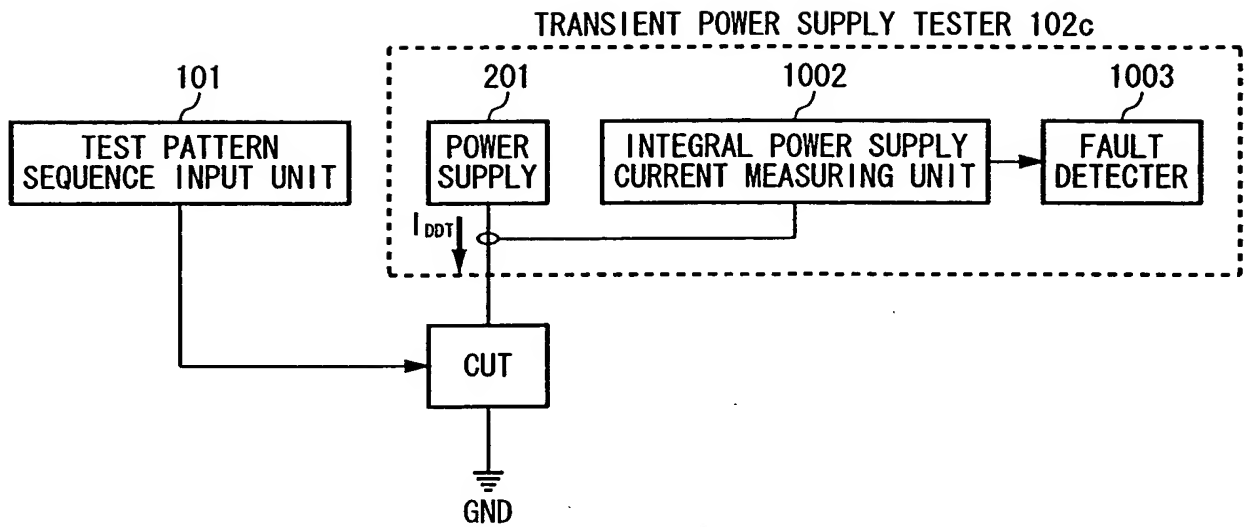


FIG. 29

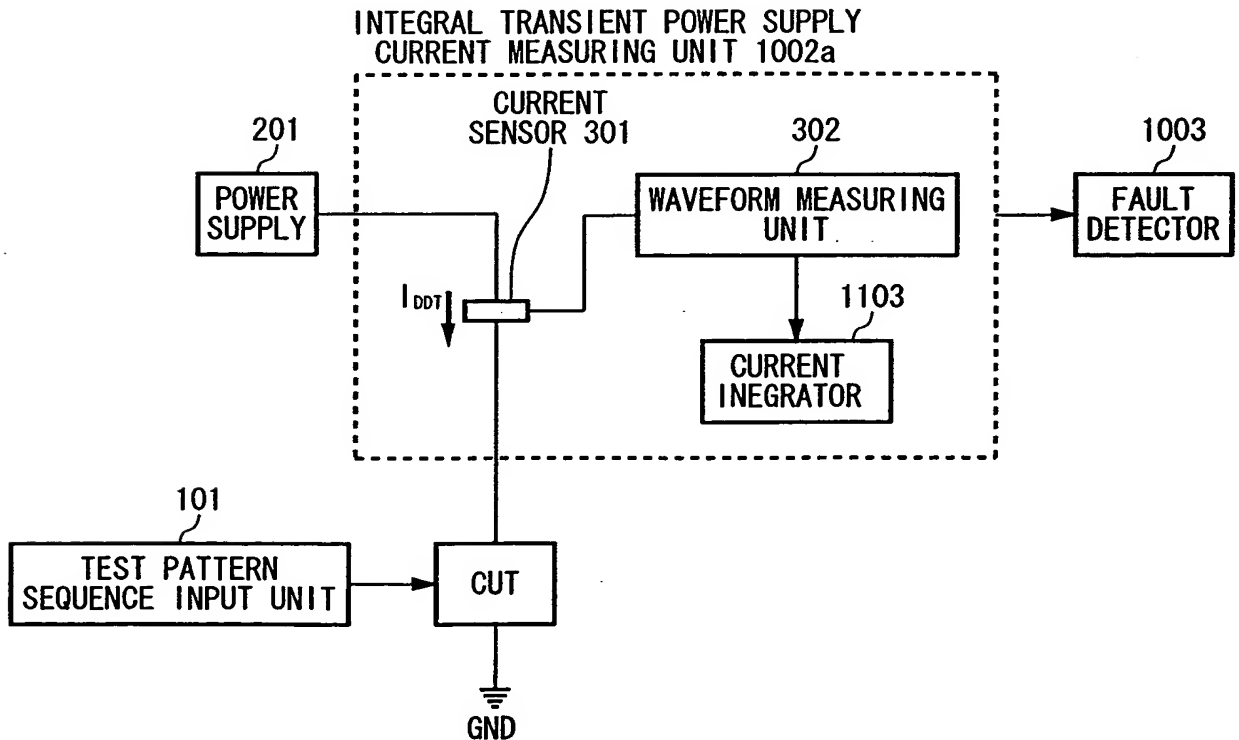


FIG. 30

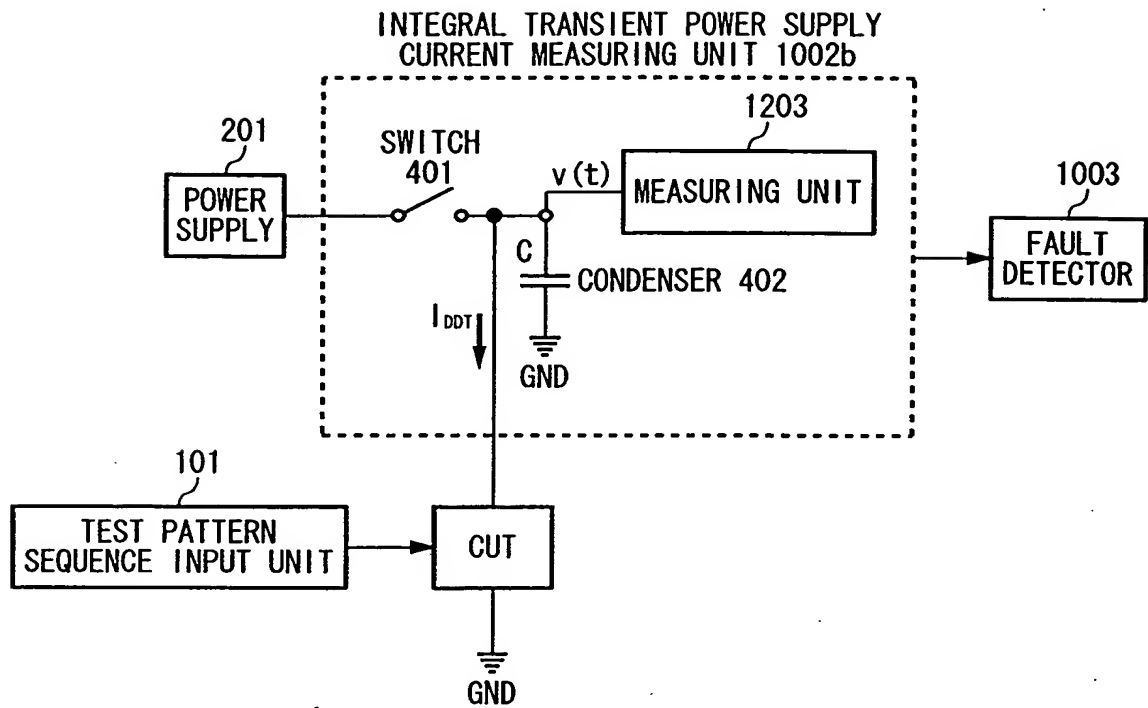


FIG. 31

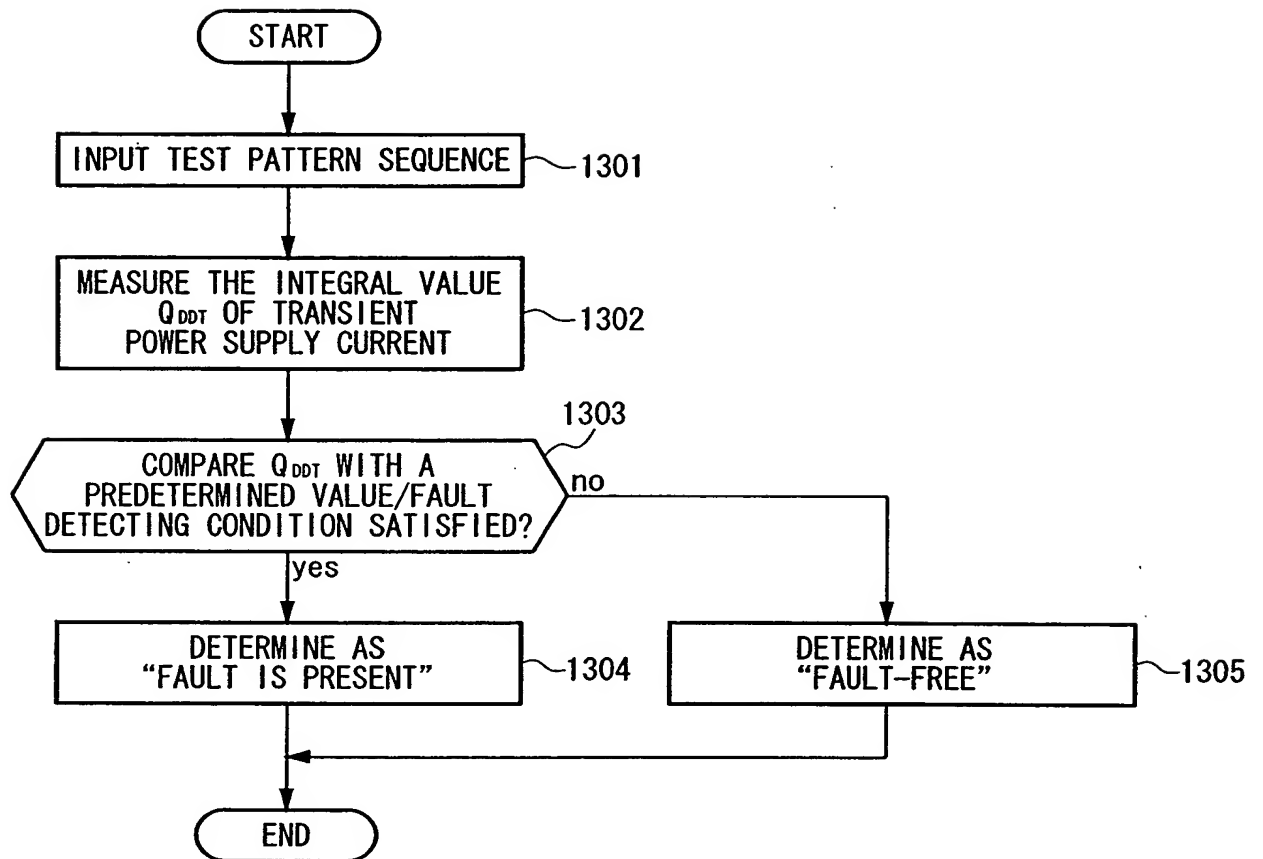


FIG. 32

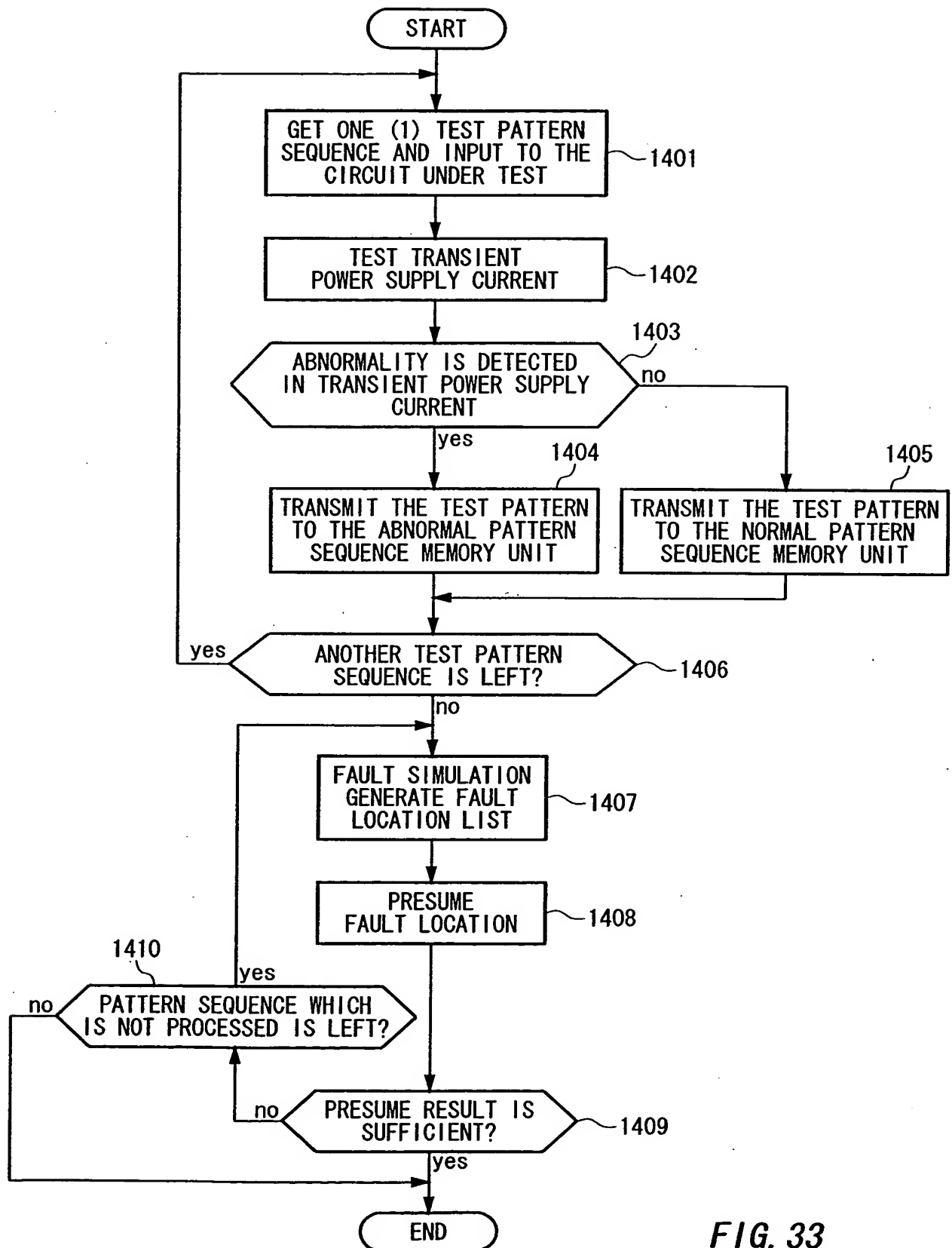


FIG. 33

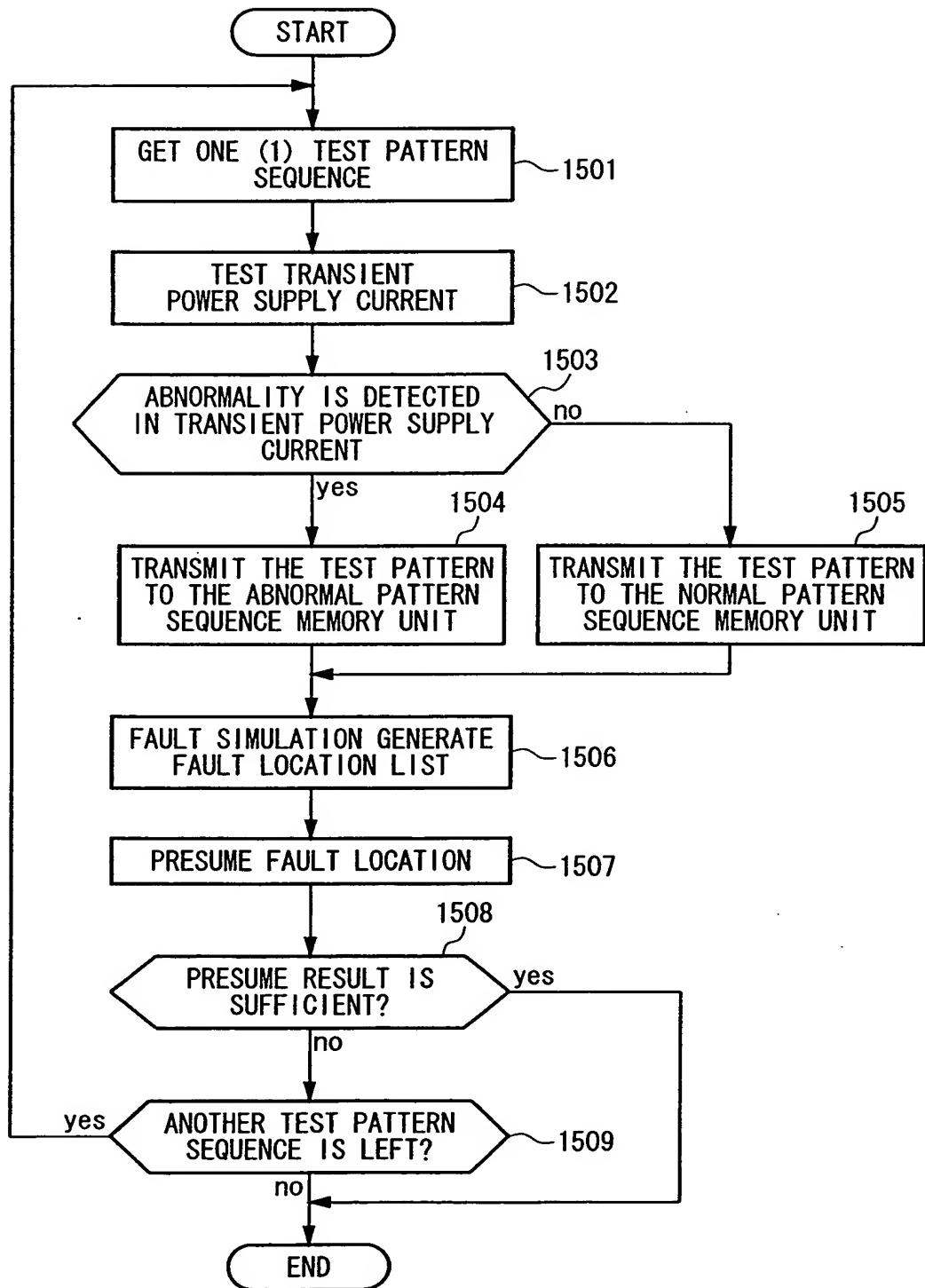


FIG. 34



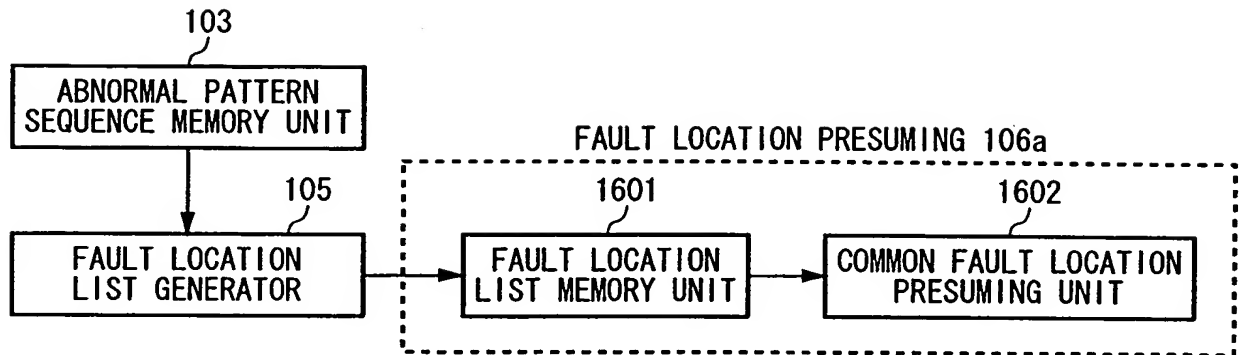


FIG. 35

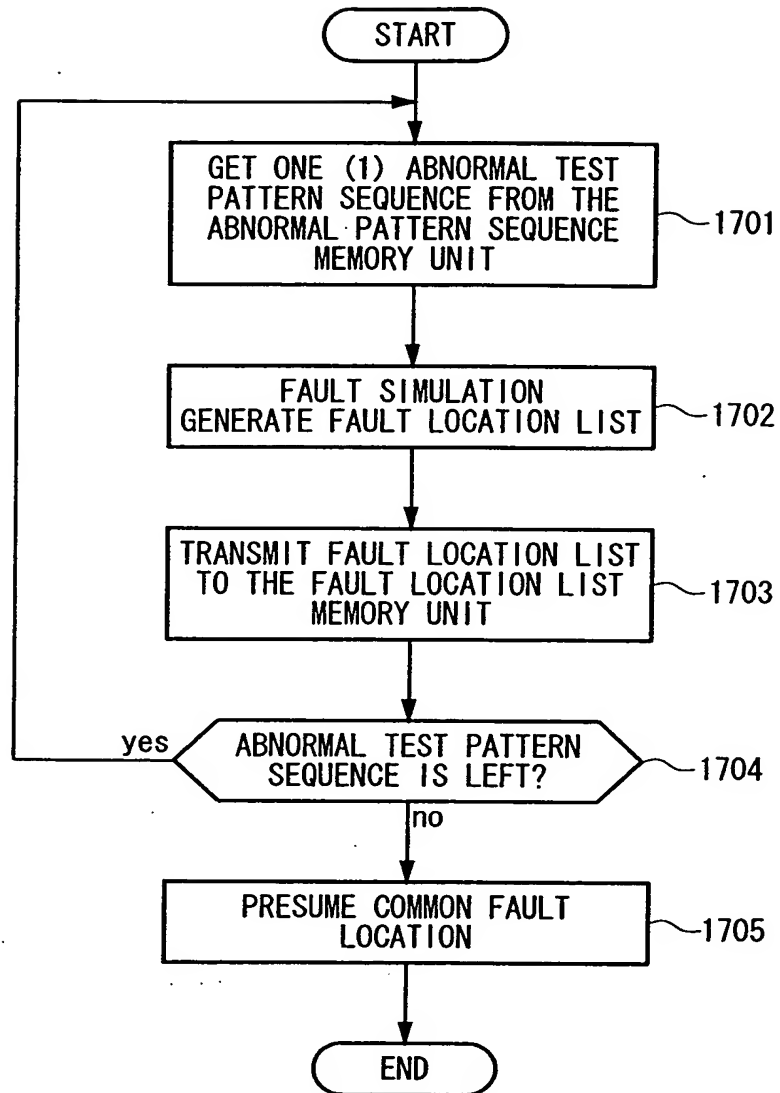


FIG. 36

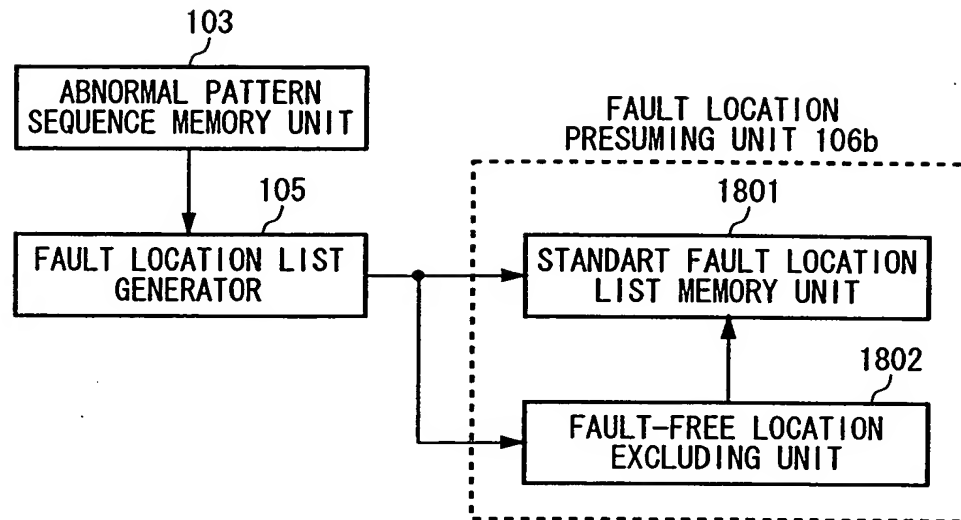


FIG. 37

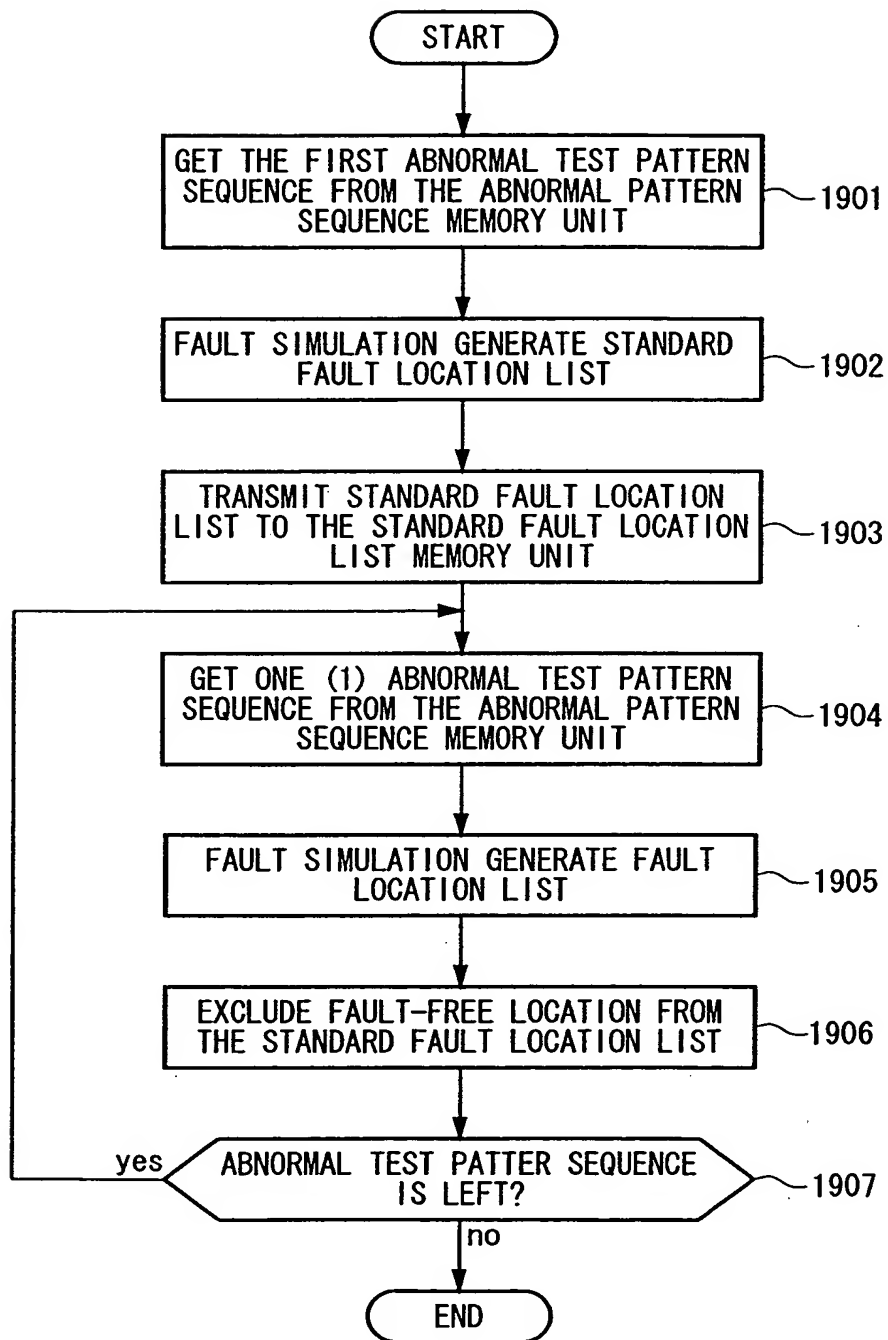


FIG. 38

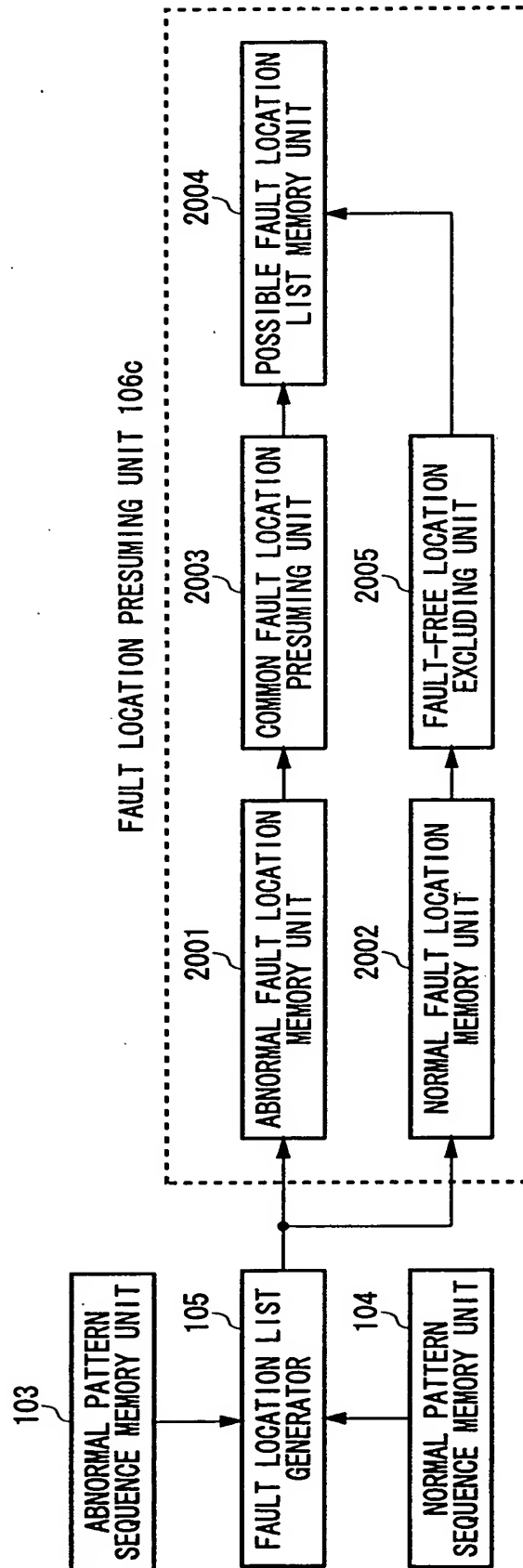


FIG. 39

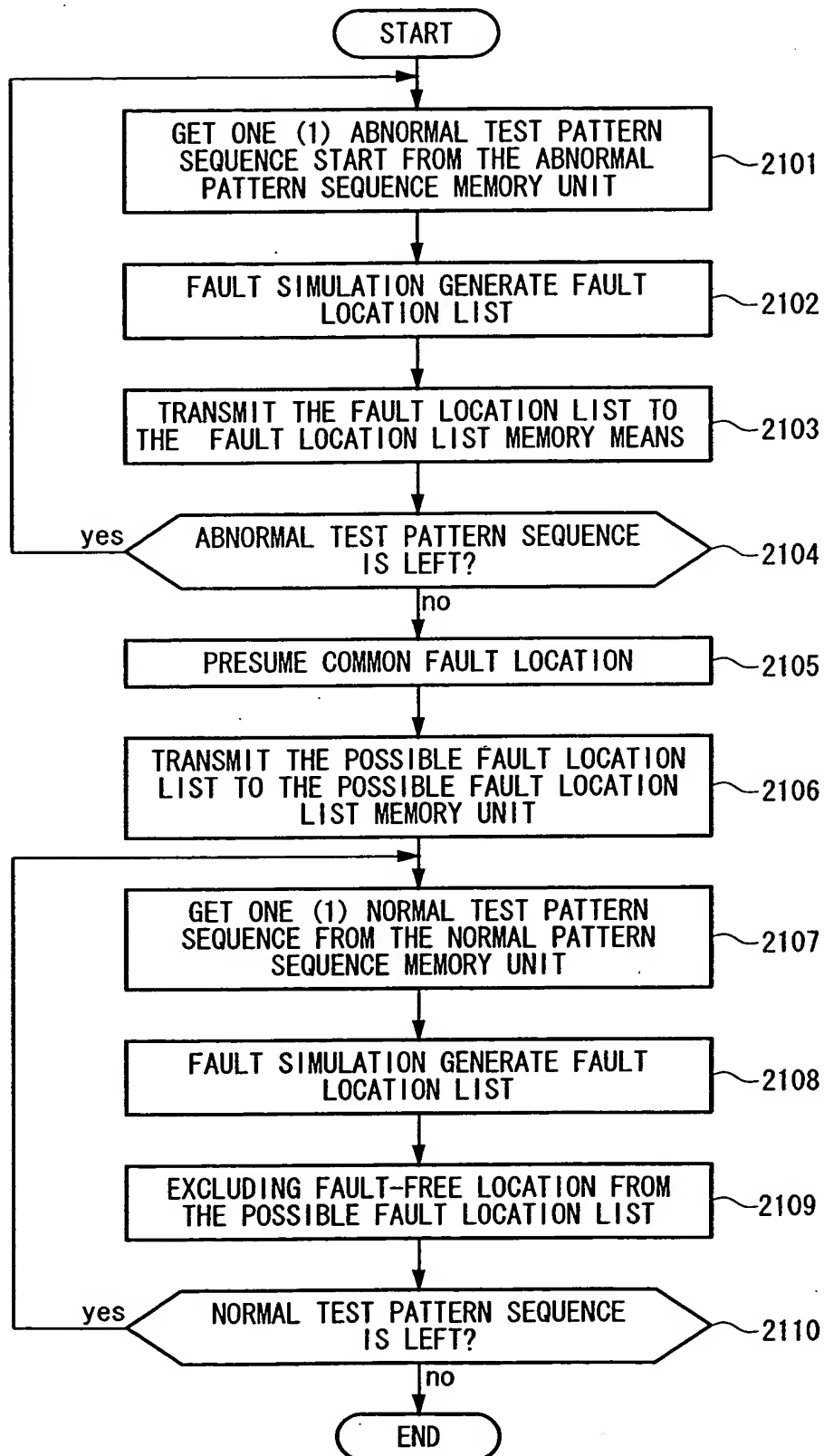


FIG. 40